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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,461	06/22/2005	Horst Vestweber	09931-00042-US	2766

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EXAMINER	
NELSON, MICHAEL E	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
06/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,461	VESTWEBER ET AL.	
	Examiner	Art Unit	
	MICHAEL E. NELSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-8 and 11-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 5-8, 11-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. In response to Applicant's reply, filed 04 April 2008, claims 1, 5-8, 11-24 are pending. Claims 1, 5-8, 11-15 have been amended. Claims 17-24 have been added. Claims 2-4 and 9-10 have been cancelled.

Claim Rejections - 35 USC § 112

2. Claims 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In claims 17-19 and 21, each has a requirement where the value o is 1 or more. In claim 20, o must have a value of 2 or more. However, it is unclear how o can have any value other than 1, since the structure described has only a single point of attachment to the ring, and where the unit Z represents the substructure. In a case where were multiple Z units are bonded to the spirobifluorene core, the value x is used. Since no intervening group is present between the unit Z and the core structure, there is no possibility for multiple points of attachments which would be required where o is greater than 1. This renders new claim 20 unexaminable, since the compound described cannot be determined.

Claim Rejections - 35 USC § 103

4. Claims 1, 5-8 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aziz et al. (6,392,339), in view of Steuber et al. (Advanced Materials, vol. 12, no. 2, pp. 130-133, 2000).

5. Concerning claims 1 and 5-6 Aziz et al. describe an organic light emitting device which includes a mixed region (organic layer, per claim 16) composed of a mixture of a hole transport material and an electron transport material, one of which is an emitter. (abstract)

6. Concerning claims 5-6, Aziz et al. describe the electroluminescent device discussed above, and disclose that the ratio between the hole transport material and electron transport material should be between 10:90 and 90:10 (column 9, lines 34-36).

7. The ratio of the two materials is an optimizable feature, and it would have been obvious to one of ordinary skill in the art to optimize the ratio between the two materials, as described by Aziz et al. to optimize the performance of the device.

8. Aziz et al. are silent on the use of spirofluorene compounds as the hole transporting or electron transporting materials, but do disclose preferred classes of hole transporting materials including N,N'-diphenyl-N,N'-bis(3-methylphenyl)1,1'-biphenyl-4,4'-diamine (TAD). (column 7, lines 14-15).

9. Steuber et al. describe organic electroluminescent devices with high Glass Temperature Stability Spiro compounds. Steuber et al. describe devices which compare simple devices using amine compounds as hole transporting materials, and Alq_3 as an emitting material. They compare devices using TPD (same as TAD) as the

hole transport material with devices using Spiro-TAD as the hole transport material. Spiro-TAD has a glass transition temperature of 133°C (per claim 7) (see Scheme 1, page 131), and Alq_3 has a glass transition temperature of 170°C (per claim 8) (see page 131, column 1). Steuber et al. show that the temperature stability is limited by the glass transition temperature of the Hole transport material (see page 131, column 1), and that the use of Spiro-TAD results in increased temperature stability compared with TPD.

10. The HOMO of Spiro-Tad is within the range of 4.8 to 5.8 since it is reported by Applicant as a preferred hole transporting material, as shown on page 8 of the specification.

11. Given this teaching, it would have been obvious to one of ordinary skill in the art to use the Spiro-TAD hole transporting material as the hole transporting material in the electroluminescent device described by Aziz et al., for the purpose of producing a device with increased temperature stability. In this case the emitting material in the mixed layer is Alq_3 a hydoxyquinolinate4 of aluminum, though other electron transporting materials are mentioned, including complexes of gallium and zinc (column 8, lines 25-35).

12. Concerning claims 11, Aziz et al. describes the electroluminescent device discussed above, Aziz et al. discloses that the mixed region can be formed by co-evaporating a hole transport material and an electron transport material to form a mixed region (column 9, lines 47-52).

13. Concerning claims 12-16, Aziz et al. further discloses that the mixed region can be formed by any suitable method that enables the formation of selected mixtures. (column 9, lines 47-48. As stated in the MPEP 2113:

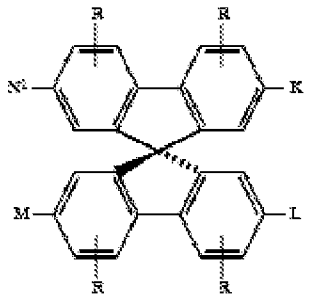
14. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps."

15. The structure of the device shown produced by Aziz et al. by a sublimation method, appears on its face to be identical to a device which would be produced by the Applicant's methods, since all of the methods would produce the light-emitting layer described above.

16. Claims 17-19, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lupo et al. (5,840,217).

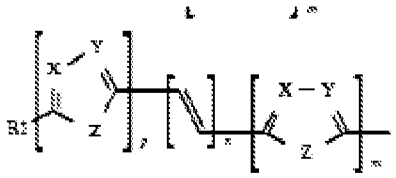
17. Concerning claims 17-19, Lupo et al. describe Spiro compounds, and electroluminescent devices comprising those compounds.

18. The structure of the spiro compounds described are shown below, (column 2, lines 31-32)



(III)

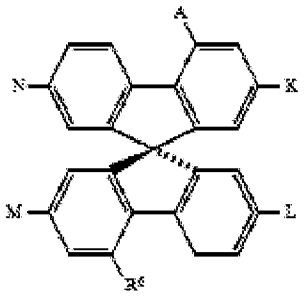
Where each of K, L, M, and N^1 are identical or different and include (column 3, line 10)



Where X and Y are CR or N, and Z is -CH=CH-, O, S, NR^1 or CH=N (Essentially X,Y,and Z form an aromatic hydrocarbon or heteroaromatic ring), m,n,and p are 0, 1, 2 or 3, and R1 are the same as R, and include $–NR^2R^3$, where R^2 and R^3 include H, alkyl or –Ar, where Ar is phenyl, biphenyl, naphthyl, thienyl or furyl. (column 3, lines 18-37)

19. In short, the Compounds of Applicant's claims 17-19 are identical to the compounds described by Lupo et al. where R1 is $–NR^2R^3$, and R^2 and R^3 are aryl groups.

20. Also described are compounds having the general structure (V) shown below (column 15, line 1), where the substituents are defined in the same way as above, illustrating compounds where X is greater than 1 according to Applicant's Formula (I)



21. Extensive synthetic processes are described (column 23 and 24). Given the explicit description of an $–NR^2R^3$, and R^2 and R^3 are aryl groups, it would have been obvious to one of ordinary skill in the art to make compounds where the substituent R1 was $–NR^2R^3$, and R^2 and R^3 are aryl groups.

22. Lupo et al. discloses the compounds discussed above. While Lupo et al. fails to exemplify the presently claimed amine substituent nor can the claimed compound be "clearly envisaged" from Lupo et al. as required to meet the standard of anticipation (cf. MPEP 2131.02), nevertheless, in light of the overlap between the claimed compounds and the compounds disclosed by Lupo et al., it is argued that it would have been within the bounds of routine experimentation, as well as obvious to, and within the skill level of, one of ordinary skill in the art, to use the arylamine substituent disclosed by Lupo et al.

23. Concerning claim 21, Lupo et al. also describe electroluminescent devices comprising the material described above (column 25, lines 3-7).

24. Concerning claims 22-24, Lupo et al. do not disclose specific methods for forming the electroluminescent devices. However, the structure of the devices is clearly described, where the materials are incorporated into the device. As stated in the MPEP 2113:

25. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps."

26. The structure of the device shown produced by Lupo et al. appears on its face to be identical to a device which would be produced by the Applicant's methods, since all of the methods would produce the light-emitting device described above.

Double Patenting

27. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

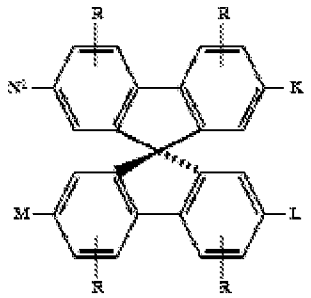
obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

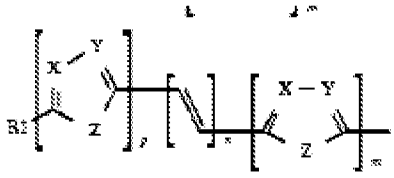
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

28. Claims 21-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 5,840,217.

Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 5,840,217 claims electroluminescent devices comprising spiro compounds as shown below, (column 2, lines 31-32)



Where each of K, L, M, and N^1 are identical or different and include (column 3, line 10)



Where X and Y are CR or N, and Z is -CH=CH-, O, S, NR^1 or CH=N (Essentially X,Y,and Z form an aromatic hydrocarbon or heteroaromatic ring), m,n,and p are 0, 1, 2 or 3, and R1 are the same as R, and include $–NR^2R^3$, where R^2 and R^3 include H, alkyl or –Ar, where Ar is phenyl, biphenyl, naphthyl, thienyl or furyl. (column 3, lines 18-37)

29. In short, the Device of Applicant's claims 21-24 are identical to the devices claimed in U.S. Patent No. 5,840,217 where R1 is $–NR^2R^3$, and R^2 and R^3 are aryl groups. The claims differ from the present claims only in the scope of the materials claimed.

30. Although (5,840,217) does not claim the process of present claims 22-24, it is noted that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process", *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, "although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product", *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given that 5,840,217, on it's face meets the requirements of the claimed device, 5,840,217 clearly meet the requirements of present claims 22-24.

Claims 22-24 are directed to an invention not patentably distinct from claim 2 of commonly assigned U.S. Patent No. 5,840,217. See discussion above.

Response to Arguments

31. Rejections of claim 10 under 35 U.S.C. 101 and 35 U.S.C. 112 , 2nd paragraph are withdrawn due to the cancelling of claim 10. Double patenting rejections against U.S. Patent No. 6,911,551 are withdrawn in light of Applicant's amendments.

32. Rejections against Matsuura et al. are withdrawn due to the filing of a certified English Translation of the Priority Document.

Conclusion

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL E. NELSON whose telephone number is (571)270-3453. The examiner can normally be reached on M-F 7:30am-5:00pm EST (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael E. Nelson
Examiner
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Supervisory Patent Examiner, Art Unit 1794